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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,386	01/31/2001	Michael D. DeGrandpre	UMT-101X	7823

7590 10/02/2003

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EXAMINER
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CROSS, LATOYA I

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/775,386

Applicant(s)

DEGRANDPRE, MICHAEL D.

Examiner

LaToya I. Cross

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed August 27, 2003 contains references for which no copy or only a partial copy of the publication is provided. Specifically, only copies of the cover sheets for Chemical Sensors and Biosensors for Medical and Biological Applications and Electrochemical Analysis were provided. Applicants are requested to provide any pertinent pages from these sources. Also, pages 22, 24 and 26 are missing from Limnol. Oceanogr. "Simultaneous mooring based measurements of seawater CO<sub>2</sub> and O<sub>2</sub> off Cape Hatteras, North Carolina". Pages 970, 972 and 974 are missing from Limnol. Oceanogr. "In situ measurements of seawater pCO<sub>2</sub>". Applicants are requested to provide the missing pages.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for renewing the analyte selective reagent (pump and valve) and means for calculating the sensor response from a ratio of the absorbance of said reagent determined relative to a blank solution, as recited in claim 1, must be shown or the feature(s) canceled from the claim(s). Also, the drawings must show a spectrograph filter (claim 10) and a GaP photodiode (claim 11). No new matter should be entered.

Also, it is unclear from Applicants' specification whether Figure 1 is a prior art figure, whereas Figure 2 describes the instant invention. If Figure 1 is a prior art figure, the figure should denote such. See MPEP 608.02(g).

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-24 are rejected under 35 U.S.C. 102(a) as being anticipated by Analytical Chemistry, "Calibration-Free Optical Chemical Sensors" to DeGrandpre et al.

DeGrandpre et al teach calibration free optical chemical sensors and methods for determining  $p\text{CO}_2$ . The sensor may be a submersible autonomous moored instrument (SAMI), as recited in claims 8 and 20 (p. 1153). The sensor comprises an indicator solution (analyte selective reagent), which may be bromothymol blue, as recited in claims 9 and 21 (Figure 3). Bromothymol blue is a colorimetric indicator, as recited in claims 2, 3, 14 and 15. The sensor also comprises a means for renewing the reagent. The means is taught as being a solenoid pump, possibly having a valve, for pushing new reagent into the membrane for each measurement, as recited in claims 4-6 and 16-18 (pp. 1154, 1158). A means for allowing the reagent to reach equilibrium with an analyte is provided by a membrane equilibrator (Figure 2). A means for calculating the sensor response from a ratio of the absorbance of said reagent determined relative to a blank solution is provided as an equation where the absorbance ratio is related as  $A_{620}/A_{434}$ , as recited in claims 7, 12, 19 and 24 (p. 1154). At page 1155, DeGrandpre

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et al teach that a heat-absorbing filter may be placed at the spectrograph fiber optic input to reduce stray light, as recited in claims 10 and 22. Further, as an alternative, a GaP photodiode, insensitive to NIR light, may be used, as recited in claims 11 and 23 (page 1155). With respect to the claimed method, DeGrandpre et al teach using the reagent based sensor, renewing the reagent using the solenoid pump and valve, equilibrating the renewed reagent with the membrane equilibrator and calculating the sensor response from a ratio of the absorbance of said reagent determined relative to a blank solution.

Therefore, for the reasons set forth above, Applicants' claimed invention is deemed to be anticipated, within the meaning of 35 USC 102(a) in view of the teachings of DeGrandpre et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 703-305-7360. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 703-308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



LaToya I. Cross  
Patent Examiner  
Art Unit 1743